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AMSAT NEWS SERVICE
ANS-030

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:

ans-editor@amsat.org

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SB SAT @ AMSAT $ANS-030.01
ARISSat-1 Arrives at the International Space Station

AMSAT News Service Bulletin 030.01
From AMSAT HQ SILVER SPRING, MD.
January 30, 2011
To All RADIO AMATEURS
BID: $ANS-030.01

On January 28 at 0132 UTC,a Soyuz rocket lifted off from Kazakhstan carrying the Russian Progress M-09M cargo vehicle to orbit headed for the International Space Station (ISS).

While the primary cargo of the Progress vehicle is fuel, oxygen, food and other supplies, the Progress also contains AMSAT's ARISSat-1 Amateur Radio satellite.

Progress docked with the space station just two days after launch, on January 30 at 0239 UTC.

Currently ARISSat-1 is planned to be manually deployed from the ISS by Russian cosmonauts Dmitry Kondratyev and Oleg Skripochka during a spacewalk on February 16. ARISSat-1/RadioSkaf V will have simultaneous 2m FM, CW, BPSK and transponder transmissions. These multiple transmissions are created by a new software defined transponder (SDX) board. Features provided by the SDX include:

* The FM transmissions with cycle between a voice ID, select telemetry values, 24 international greeting messages in 15 languages and live SSTV images.
* The CW transmissions will be callsign ID, select telemetry, and call signs of people actively involved with the ARISS program.
* The BPSK transmissions will feature a new 1kBPSK protocol developed

by Phil Karn, KA9Q to be readable in low signal level conditions. The BPSK data will alternate betwen telemetry and Kursk experiment data. Free ground station soundcard demodulator and display software will be available before deployment for multiple platforms.
* There also is a 16kHz wide amateur radio U/V transponder between the BPSK and FM signals.
* The Kursk experiment will be sampling the amount of vacuum each day for 90 minutes and sending down data to map the vacuum change as the satellite slowly spirals into the atmosphere.

[ANS thanks Gould, WA4SXM, for the above information]

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SB SAT @ AMSAT $ANS-030.02
AMSAT-UK FUNcube System Accepted for UK Space Agency UKube1 Payload

AMSAT News Service Bulletin 030.02
From AMSAT HQ SILVER SPRING, MD.
January 30, 2011
To All RADIO AMATEURS
BID: $ANS-030.02

Graham, G3VZV announced on behalf of AMSAT-UK this week that the FUNcube system has now been formally accepted as a participant in the UK Space Agency Announcement of Opportunity for payload providers for its pilot CubeSat mission, UKube1.

Seven finalist payloads are currently under consideration with the final three or four flight payloads to be announced in March, 2011. This includes the AMSAT-UK FunCube telemetry system for science education, which will be integrated with the spacecraft as part of the program.

Graham explained, "While the UK Space Agency release does not mention the FUNcube linear U/V transponder function during evenings and weekends, this functionality will be included in the same way that it is planned for the actual FUNcube-1 cubesat itself. The FUNcube development team is looking forward to the extra challenge of producing two sets of everything in the very short time scales required by both projects!"

[ANS thanks Graham, G3VZV for the above information]

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SB SAT @ AMSAT $ANS-030.03
1000 Days in Orbit for Ham Radio Satellite Delfi-C3

AMSAT News Service Bulletin 030.03
From AMSAT HQ SILVER SPRING, MD.
January 30, 2011
To All RADIO AMATEURS
BID: $ANS-030.03

Sunday, January 23 saw the 1000th day in orbit for the Amateur Radio satellite Delfi-C3, which was the first 3U CubeSat to carry a linear transponder.

Wouter, PA3WEG wrote, "The downlink is still OK and telemetry shows no big degradations. This means Delfi-C3 is still in good health. Apart from the problems with the transponder and some occasional resets

and lockups, scientific data is still being received. Also, this data is still forwarded by radio amateurs to our server. Once again our big thanks for receiving Delfi-C3 and your continued support of the project."

Visit the Delfi-C3 web page at: http://www.delfic3.nl/ The radio amateur section at: http://tinyurl.com/6f362zu has the information you need to receive the satellite. There is also a link to the Rascal Software if you would like to have your amateur radio station become a part of the global Delfi-C3 monitoring network.

[ANS thanks Wouter Weggelaar, PA3WEG and his Delfi-C3 team and the SouthGateARC site for the above information]

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SB SAT @ AMSAT $ANS-030.04
ND9M/VQ9JC Maritime Mobile Satellite Operations Planned

AMSAT News Service Bulletin 030.04
From AMSAT HQ SILVER SPRING, MD.
January 30, 2011
To All RADIO AMATEURS
BID: $ANS-030.04

Jim, ND9M/VQ9JC plans to operate the amateur radio satellites from his merchant marine ship presently enroute from Diego Garcia (grid MI62) to Charleston, SC (FM03) via the Pacific Ocean. Jim says he has an FT897D and an FT817ND with an Arrow-2 antenna. He plans to be active from quite a few wet grids along the way. His ocean route will take him through grid fields include MI, NI, OI, OJ, PJ, PK, QK (24 hours at Guam), QL, RL, RM, AM, BM, CM. and DM.

Jim's job is seven days a week for four months straight and he will not generally be available during the normal daytime working hours so operating opportunities during these times cannot be predicted.

The majority of passes he can be on will be in the late afternoon and early evening, so AO51, FO29, and AO7 Mode B will be the focus. Early morning AO7 passes will occasionally be available. Operating during late evening passes will be likely once the ship crosses the International Date line and enters the eastern Pacific. Jim's portable satellite station will be setup on the ship's helicopter deck.

The ship will be off the coast of southern California by the end of February and should be there for about 10 days before resuming the voyage towards Charleston via the Panama Canal, then northward around Cuba towards Jacksonville (EM90) for another stop at the end of March. The voyage will finish in April in Charleston, SC.

Jim says he has applied for an IARP permit for Panama so that, barring unforeseen regulations, he will be able to operate whatever passes occur as the ship transits the Canal.

E-mail contact for Jim is via james.t.clary.civ(at)msc.navy.mil. He plans to post regular updates on his trip's progress to the AMSAT-BB.

[ANS thanks Jim ND9M/VQ9JC for the above information]

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SB SAT @ AMSAT $ANS-030.05

Catch a Visual Glimpse of NanoSail-D in Orbit

AMSAT News Service Bulletin 030.05
From AMSAT HQ SILVER SPRING, MD.
January 30, 2011
To All RADIO AMATEURS
BID: $ANS-030.05

In a posting on http://www.nanosail.org/ Spaceweather.com and NASA announce they are joining forces to encourage photography of Nano-Sail-D, the first solar sail to circle Earth in low orbit.

Amateur and professional astronomers and even casual sky watchers can participate. The solar sail will occasionally be visible to the naked eye when sunlight glints off the spacecraft's 10 m2 sail, producing a spectacular flash akin to an Iridium Flare. UniverseToday predicts NanoSail-D could be five to 10 times as bright as the planet Venus, especially later in the mission when the sail descends to lower orbits.

Even novice photographers can capture such a bright event. Advanced astrophotographers, meanwhile, will want to try to image the sail through backyard telescopes. It will be a challenge (the sail is only 1 arc second across), but even fuzzy pictures could help NASA monitor the condition of the spacecraft. Cash prizes will be awarded to the first ($500), second ($200), and third ($100) place photos, judged by a NASA-appointed panel on the basis of beauty and technical merit.

The contest begins now and ends when NanoSail-D reenters the atmosphere in April or May 2011.

These sites provide viewing predictions:
http://spaceweather.com/flybys/
http://www.heavens-above.com

NASA's Science News web site has additional NanoSail-D news and a link to audio from the satellite recorded by Henk, PA3GUO:
http://tinyurl.com/4s7nj4r (nasa.gov)

[ANS thanks SpaceWeather.com and UniverseToday.com for the above information]

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SB SAT @ AMSAT $ANS-030.06
Echoes of Apollo Call for Student Investigators & Adult Engineering Mentors

AMSAT News Service Bulletin 030.06
From AMSAT HQ SILVER SPRING, MD.
January 30, 2011
To All RADIO AMATEURS
BID: $ANS-030.06

Pat Barthelow, AA6EG of the Echoes of Apollo Project (the folks who brought us the 70cm Arecibo EME activity) is working with kids on the Google Science Fair. The students and adult mentors have devised a simple experiment to measure the distance to the moon using Moon Bounce.

Pat has several EME stations committed and is looking for more technical support. He is also looking for additional young Co-Primary Investigators (Age 13-18) to participate.

Time is of the essence. Reply directly to: apolloeme@gmail.com

Pat says the students will develop the experiment, lead, analyze.
Adults are needed to nurture, guide, mentor with these goals in mind:

+ Key a CW transmission or alternatively, send an audio impulse via
   microphone to EME TX.

+ Starting the time clock on the impulse transmission whether Audio
   "Clack" or CW key.

+ Recording for Science Fair presentation, using Multimedia video/audio
   eqiupment in the Moon bounce Station.

+ Stopping the clock when the audio/RF does RT to moon (~2.5 Seconds)
   and returns, and is demodulated by Moon bounce RX and presented at
   Audio speaker terminals.

+ Pre-measure station delays in TX and RX to develop a constant for
   internal equipment delays.

+ Measuring the EME interval as closely as possible, with simple
   equipment, say, to milliseconds. Probably take the Multimedia video/
   audio to a Video editor, to measure delay, digitally.

+ Compare distance to the moon in the NASA, or US Naval Observatory
   databases for their actual distance to moon, at the moment of the
   experiment.

+ Student analyzes for errors, error sources, discusses return signal
   distortion, due to doppler, Libration, pulse stretching, due to
   spherical moon, etc.

+ Student suggests follow up experiment, to minimize measurement
   errors, or assuming more sophisticated equipment became available.

QUESTION: For an analog RX to audio output, what would be the best
way be to measure the internal propagation delay in an [Analog, Digi-
tal] receiver, from the time of arrival of the RF at the Antenna con-
nector to demodulated output [Analog, Digital] at the speaker, or
computer screen.

For analog receivers, is the internal RX propagation delay, in order
of: microseconds?   Milliseconds?   For Digital receivers?

Best Regards,
Pat Barthelow, Echoes of Apollo
apolloeme@gmail.com

[ANS thanks Pat Barthelow, AA6EG of the Echoes of Apollo Project
  for the above information]

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SB SAT @ AMSAT $ANS-030.07
Satellite Shorts From All Over

AMSAT News Service Bulletin 030.07
  From AMSAT HQ SILVER SPRING, MD.
January 30, 2011
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+ Clint, K6LCS has posted his AMSAT and amateur satellite handouts he plans to use at the Palm Springs HamFest. One is an "Intro to AMSAT" newsletter with membership form, the other an ARISSat-1 Update and Band Plan. Both are posted at: http://tinyurl.com/ps-handouts Clint invites you to use or adapt either for your projects and presentations.

+ Two videos of Japan's H-IIB rocket launch with the Kounotori 2 cargo resupply transporter January 22 from Tanegashima Space Center in southern Japan can be viewed at: http://tinyurl.com/64zuajp Kounotori2, or 'White Stork' in Japanese, is loaded with crucial supplies destined for the International Space Station (ISS). Video and photos of the arrival and capture of the Kounotori2 can be seen at: http://tinyurl.com/4vop4rt

+ A new video gives the latest news on the Euroluna 2U CubeSat project with the Amateur Radio callsign OZ9LUNA. It describes the 2U cubesat, work on the software and the attitude control, and work ongoing on the ion motor. Watch on-line at: http://tinyurl.com/4cnfahv

+ An interesting science blog posting about the special relativity you would encounter while traveling at the speed of light is posted at: http://tinyurl.com/5sj7q2p (UniverseToday.com) This may present a way to change the subject to something scientific if the subject on 75 meters LSB QSO gets stuck on the state of the other fellow's gallbladder.

+ The folks from the HiRISE Camera on the Mars Reconnaissance Orbiter have put together a video of the latest images from the Red Planet: http://tinyurl.com/6hc7edb. The Mars Express spacecraft took a series of detailed images of the Martian moon Phobos. These images have been morphed into a seamless flyby movie which can be viewed on-line at: http://tinyurl.com/4srutec

+ The next Hudson Valley Satcom Net will meet on Thursday, February 3 at 8PM EST (UTC-5) on the Mt.Beacon ARC 146.970 MHz repeater (-600 & Pl 100). You can also join via Echolink on the N2EYH-L node. All hams are welcome! More info at http://www.hvsatcom.org/ (Stu, WA2BSS)

[ANS thanks everyone for the above information]

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SB SAT @ AMSAT $ANS-030.08
ARISS Status - 24 January 2011

AMSAT News Service Bulletin 030.08
From AMSAT HQ SILVER SPRING, MD.
January 30, 2011
To All RADIO AMATEURS
BID: $ANS-030.08

1. Two Italian Schools Experience ARISS Contact

On Tuesday, January 18, two Italian schools, "Istituto Comprensivo Ladispoli" and Middle School "Corrado Melone", located in Ladispoli, Rome, Italy participated in a joint Amateur Radio on the International Space Station (ARISS) contact with Paolo Nespoli, IZ0JPA. Twenty-eight space-related questions were answered and greetings exchanged over two ISS passes. ARISS mentor Francesco De Paolis, IK0WGF introduced the event and presented the ARISS program to an audience of 250 students, teachers and visitors. National Television (RAI NEWS 24 hours), local

media and newspapers covered the event. The contact was the highlight of a curriculum covering space, geography and telecommunications.

2. Expedition 24 Crew Debrief Session

An ARISS debrief session was held with Expedition 24 crewmembers Doug Wheelock, KF5BOC and Shannon Walker, KD5DXB on Tuesday, January 18. The feedback they provided on the ISS Ham radio equipment and school contacts will aid the ARISS team in updating its program procedures.

3. ARISS International Meeting Held

The monthly ARISS International Team meeting was held on Tuesday, January 18. Topics of discussion included the upcoming face to face meeting and a status on the Columbus module equipment as well as ARISSat-1. Minutes have been posted.
See: https://www.rac.ca/ariss/arisstel2011-01-18.htm

[ANS thanks Carol, KB3LKI, for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

73,
This week's ANS Editor,
Lee McLamb, KU4OS